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19961004 061

Report No. 95-27

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NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

**Childhood Parenting Experiences, Intimate Partner Conflict Resolution
and
Risk for Child Physical Abuse**

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Report No. 95-27, supported by the Bureau of Naval Personnel, Department of the Navy, under a reimbursable research work unit No. 6309. The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Navy, Department of Defense, or the U.S. Government.

The authors wish to acknowledge the contribution of Dr. Sandra Rosswork, the project sponsor, whose support made this study possible. Additional acknowledgements are due to Dr. Steven Thornton, for project coordination, and to the corpsmen and psychologists at RTC, Orlando, Florida, who did a superb job collecting data. Finally, the authors extend their sincere gratitude to the many Naval Health Research Center staff members, particularly LT Steven Linnville, Lorene Irwin, HM2 Brian Appleton, HM3 Venus Valencia, HM3 Leslie Smith, and Julie Heredia, who volunteered to score questionnaires and enter data.

SUMMARY

Problem: Little evidence exists to support the hypothesis of the intergenerational transmission of aggression. Specifically, data are needed to clarify the suggestion that the physically aggressive behavior of parents toward their children is intergenerationally transmitted via social interactions.

Objective: This study's objectives were to: (1) document the relationships between the childhood experience of physical violence, intimate partner physical violence, and child physical abuse risk in a U.S. Navy recruit sample; (2) provide the first exploration of the possibility that the occurrence of intimate partner physical violence following the childhood experience of parental physical violence increases adult risk for child physical abuse; (3) explore the suggestion that stronger relationships may exist between the childhood experience of abuse and female victimization, relative to female perpetration, and male perpetration, relative to male victimization, in intimate partner relationships; (4) examine the possibility that such gender differences extend to the relationships between the childhood experience of parental physical violence, intimate partner physical violence, and adult child physical abuse risk; and (5) investigate the extent to which lifetime alcohol problems contribute to intimate partner physical violence, physical injury by an intimate partner, and child physical abuse risk after the contributions of physical violence histories have been accounted for in the prediction of each of these events.

Approach: This study investigated the relationships between conflict resolution tactics experienced during childhood, intimate partner conflict resolution tactics, alcohol problems, and child physical abuse risk. Participants were 1,544 female and male Navy recruit trainees who volunteered to complete measures of parenting practices and spousal physical violence experienced during their childhood, the conflict resolution techniques used in their intimate relationships, their personal history of alcohol problems, and child physical abuse potential.

Results: Regression analyses indicated that the receipt of intimate partner physical violence accounted for the most variance in predicting who would inflict physical violence against an intimate partner; and, the infliction of intimate partner physical violence accounted for the most variance in predicting who would receive physical violence from an intimate partner. Other regression analyses indicated that among the physically violent events experienced from parents

and intimate partners, parental violence experienced during childhood accounted for the most variance in explaining child abuse risk in females and males, with the infliction of intimate partner violence adding only to the prediction of child abuse risk in females. The regression analyses also revealed that after the effects of violent experiences were removed, alcohol problems contributed significantly, albeit very modestly, to the prediction of who expressed intimate partner physical violence for males and females, who was physically injured by an intimate partner (in the case of male injury), and who was at risk of child physical abuse for males and females. Unlike the findings in some previous reports, gender differences tended to be modest.

Conclusions: The current study provides data that modestly support the view that a pattern of violence in females (receipt of parent-child physical violence and infliction of intimate partner physical violence) increases the risk of child physical abuse. However, the view that even in some individuals a continuum of violence exists, from the childhood experience of violence to intimate partner violence to child physical abuse, is simplistic without a determination of other contributing and buffering factors, at the personal and structural levels, that moderate and mediate the linkages. The need to search for additional contributing factors is supported by the fact that in even the most robust of the regression models, only about one third of the variance was accounted for indicating that other major contributing factors remain to be included in the study of characteristics that contribute to intimate partner and child directed physical violence.

INTRODUCTION

Within the context of social interactional models of child physical abuse, social learning theory provides a conceptual basis for the view that childhood experiences in the family of origin contribute to the risk of child abuse during adulthood (e.g., see Tzeng, Jackson, & Karlson, 1991, pp. 94-98). Aggressive behavior patterns are thought to develop, in part, as a result of observational learning where children engage in behaviors they have experienced and witnessed (Bandura, 1977). In a narrow view, the intergenerational transmission of abuse hypothesis suggests the childhood experience of parental physical abuse increases the likelihood of later adult child physical abuse. In a broader conceptualization, the experience of aversive parenting behavior (e.g., verbal aggression and physical violence), the lack of positive parenting behavior (e.g., reasoning and nurturing behaviors), and the observation of spouse abuse are believed to contribute to child physical abuse. In addition, it is believed that children who are subjected to physically violent parenting behaviors, compared to children who are not, are more likely to develop a pattern of aggressive behavior during childhood, exhibiting aggressive behavior in their peer and, later, in their adult relationships.

Almost two decades ago, Steinmetz (1977) noted that clinical evidence indicated violent individuals often experienced childhood abuse and observed spouse abuse between their parents. Based on survey research, Straus, Gelles and Steinmetz (1980) concluded that "when a child grows up in a home where parents use lots of physical punishment and also hit each other, the chances of becoming a violent husband, wife, or parent are greatest of all" (p. 122). In the years following these observations, the intergenerational transmission of abuse hypothesis and related social learning perspectives have received support from a number of studies that report an association between the childhood experience of physical abuse and adult child abuse (for reviews see Kaufman & Zigler, 1987; Widom, 1989) and adult child abuse risk (Caliso & Milner, 1994; Miller, Handal, Gilner, & Cross, 1991; Milner, Robertson, & Rogers, 1990). In addition, some studies indicate that children exposed to parental violence are more aggressive toward their peers (e.g., see reviews by Ammerman, Cassisi, Hersen, & Van Hasselt, 1986; Conaway & Hersen, 1989; Malinosky-Rummell & Hansen, 1993; Milner & Crouch, 1993), and other studies have linked the childhood experience of aggression to dating violence in adolescence (e.g., Alfaro, 1981; Garbarino & Plantz, 1986; Reuterman & Burcky, 1989; Roscoe & Callahan, 1985;

Smith & Williams, 1992) and to dating violence in college students (e.g., Bernard & Bernard, 1983; Laner, 1985; Laner & Thompson, 1982; Marshall & Rose, 1987, 1988, 1990; Riggs, O'Leary, & Breslin, 1990; Sigelman, Berry, & Wiles, 1984).

Although extant data support a linkage between the childhood experience of parental aggression and dating violence, it is unclear if the relationship is the same for females and males. For example, while Laner and Thompson (1982) and Riggs et al. (1990) reported that the childhood experience of physical aggression was associated with the infliction of dating violence in both females and males, other investigators have reported gender differences. For example, Sigelman et al. (1984) found that the childhood experience of physical abuse was associated with the receipt and infliction of dating violence for females, but neither of these associations were significant for males. In contrast, Marshall and Rose (1987) found that the receipt of childhood violence was associated with receipt and infliction of violence in males, but not in females. Subsequently, Marshall and Rose (1988) reported that in males the childhood receipt of abuse was associated with both the infliction and receipt of intimate partner aggression; whereas, in females the childhood experience of abuse was associated only with the receipt of intimate partner violence, and this relationship was smaller than that observed for males. However, in yet another study, Marshall and Rose (1990) stated that the relationship between childhood abuse and dating violence was more robust for females, than for males, especially with respect to the receipt of violence.

At present, it is not known if there are gender differences in the childhood histories of females and males who engage in dating violence or if the mixed findings are due to methodological factors, as suggested by Malinosky-Rummell and Hansen (1993). Nevertheless, in a recent attempt to explain possible gender differences, Langhinrichsen-Rohling, Neidig, and Thorn (1995) hypothesized that the childhood experience of abuse "may have a stronger relationship to female victimization and male perpetration than it does to female perpetration and male victimization" (p. 163).

In addition to the childhood experience of parent-child physical violence, some studies have reported a relationship between the childhood observation of spousal violence and the risk for future violence, whereas other studies have not found a relationship (e.g., Dumas, Margolin, & John, 1994; Muller, Fitzgerald, Sullivan, & Zucker, 1994; Ryan, 1995; Sack, Keller, & Howard,

1982; Sigelman et al., 1984; White & Humphrey, 1994). Langhinrichsen-Rohling et al. (1995) have stressed the need for new studies to distinguish between experiencing childhood abuse and witnessing spouse physical abuse, pointing out that relatively few studies have examined both types of childhood experiences. Further, it is not known if the childhood observation of spouse abuse between the parents, alone or in combination with the childhood experience of parent-child violence, differently impacts the likelihood of future violence in males and females.

In an attempt to provide additional data on the nature of the intergenerational transmission of aggression in intimate partner violence and child physical abuse, the present study had several goals. First, the study sought to document the relationships between the childhood experience of physical violence, intimate partner physical violence, and child physical abuse risk in a recruit sample. Second, the study was designed to provide the first exploration of the possibility that the occurrence of intimate partner physical violence following the childhood experience of parental physical violence increases adult risk for child physical abuse. This expected relationship was based, in part, on the belief that some children who experience childhood parental aggression (parent-child physical violence and observation of parent spousal physical violence) develop a pattern of using violent behaviors to manage their intimate relationships. To the extent that patterns are developed, the use of violence in dating relationships by individuals who have experienced parental violence during childhood should increase the likelihood of adult child physical abuse risk. Third, the study explored the suggestion made by Langhinrichsen-Rohling et al. (1995) that there may be stronger relationships between the childhood experience of abuse and female victimization, relative to female perpetration, and male perpetration, relative to male victimization, in intimate partner relationships. The study also examined the possibility that such gender differences extend to the relationships between the childhood experience of parental physical violence, intimate partner physical violence, and adult child physical abuse risk.

For several decades, the clinical literature has suggested that a history of alcohol problems is associated with child physical abuse. While the quality of the early research supporting this relationship has been criticized (e.g., Leonard & Jacob, 1988), a recent study, which used a community sample, matched comparison subjects, and statistical control for potential confounding variables, indicated that 40% of adult child physical abusers met the criteria for alcohol or drug disorders during their lifetime (Kelleher, Chaffin, Hollenberg, & Fischer, 1994), a rate

substantially above comparison group rates. In addition, studies have reported an association between alcohol use and dating violence (e.g., Brodbelt, 1983, Makepeace, 1981, 1987; Olday & Wesley, 1988; Williams & Smith, 1994). Thus, another purpose of the present study was to investigate the extent to which lifetime alcohol problems contribute to intimate partner physical violence, physical injury by an intimate partner, and child physical abuse risk after the contributions of physical violence histories have been accounted for in the prediction of each of these events.

METHOD

Participants

Participants were incoming Navy basic trainees located at the Recruit Training Command (RTC), Orlando, Florida, who volunteered to complete the study measures. While a substantial number of trainees initially volunteered ($n = 1,891$ females and $n = 1,885$ males), a large number of participants [$n = 491$ (26.0%) of the females and $n = 687$ (36.4%) of the males] had one or more incomplete (more than 10% blank responses) questionnaires. Based on previous reports in marital violence studies (e.g., Straus et al., 1980), a lower return and completion rate was expected from males, relative to females. Although the reason(s) for the large number of incomplete questionnaires is unknown, blank responses may have been due, in part, to the instructions provided to the trainees. As discussed in the Procedures section, participants were told that if they decided to participate that they could "leave blank any section or question that you do not want to answer" and that they were "free to stop at any time." For comparison purposes, it should be noted that in a national survey using similar instruments, White and Koss (1991) reported that 24% of a sample of 6,159 male and female college students failed to complete all questionnaires. In the present study, after removal of participants with incomplete protocols, an additional 140 females and 149 males, who had Conflict Tactics Scales (CTS) and/or Michigan Alcoholism Screening Tests (MAST) with all "zero" responses, were removed (see test instrument section for scoring problems), leaving protocols from 1,260 female and 1,049 male basic trainees available for further analyses.

As a final step in the sample selection, the validity indexes (faking-good, faking-bad, and random response) on the Child Abuse Potential (CAP) Inventory were used to remove participants who appeared to be engaging in response distortions. It was anticipated that the largest number of invalid protocols would result from faking-good behavior (an attempt on the part of trainees to "look good" during the first week of training). The rate of random responding (providing responses but not attending to the item content) was expected to be greater than chance, but less than the faking-good rate. Further, based on past research, the random response rate was expected to be higher in males than in females. Finally, relatively low rates of faking-bad behavior were expected. Among the 1,260 females, 291 (23.1%) of the protocols were considered invalid due to elevated faking-good indexes, 60 (4.8%) of the protocols were

considered invalid due to elevated random response indexes, and 27 (2.1%) of the protocols were considered invalid due to elevated faking-bad indexes, leaving 882 complete and valid protocols for the females. For the males, 231 (22.0%) of the protocols were considered invalid due to elevated faking-good indexes, 121 (11.5%) were considered invalid due to elevated random response indexes, and 35 (3.3%) were considered invalid due to elevated faking-bad indexes, leaving 662 complete and valid protocols for the males. These data confirmed the hypotheses that most of the invalid protocols would be due to faking-good behavior, that males (relative to females) would produce more random response profiles, and that relatively low levels of faking-bad behavior would be observed.

Since the data were analyzed by gender, the demographic characteristics are presented for each gender (882 women and 662 men). The mean age for the women was 20.1 ($SD = 2.4$) years, and the mean age for the men was 20.2 ($SD = 2.2$) years. For women, the racial composition was 70.8% Caucasian (non-Hispanic), 17.9% African American, 5.7% Hispanic, 1.1% Asian/Pacific Islander, 2.3% Native American, and 2.3% other racial groups. For men, the racial composition was 81.3% Caucasian (non-Hispanic), 7.9% African American, 5.4% Hispanic, 2.4% Asian/Pacific Islander, 1.7% Native American, and 1.4% other racial groups. Among the women trainees, 87.5% were single, 1.2% were cohabiting, 7.6% were married, 3.5% were separated/divorced, and 0.1% were widowed. Among the male trainees, 89.7% were single, 2.0% were cohabiting, 6.8% were married, 1.4% were separated/divorced, and 0.2% were widowed. For the women, 3.5% had less than a high school education, 57.3% had finished high school, 2.2% had a General Equivalency Degree (GED), 4.2% had attended business school, and 32.8% had attended college (includes those with and without college degrees). For the men, 3.0% had less than a high school education, 52.4% had finished high school, 3.0% had a GED, 2.7% had attended business school, and 38.8% had attended college (includes those with and without college degrees). Finally, information was gathered on the trainees' parents' family income in the past year. Among the women, 8.9% indicated \$7,500 or less, 15.0% indicated from \$7,501 and \$15,000, 19.7% indicated from \$15,001 to \$25,000, 19.2% indicated from \$25,001 to \$35,000, 22.0% indicated from \$35,001 to \$50,000, and 15.1% indicated more than \$50,000. Among the men, 5.9% indicated \$7,500 or less, 11.0% indicated from \$7,501 and \$15,000, 14.6% indicated

from \$15,001 to \$25,000, 19.1% indicated from \$25,001 to \$35,000, 23.8% indicated from \$35,001 to \$50,000, and 25.6% indicated more than \$50,000.

To determine if the removal of incomplete and invalid protocols were a threat to sample representativeness in terms of demographics, the demographic characteristics of the women and men used in the final sample were compared to the demographic characteristics of the women and men who were removed from the data analyses. For women, no significant differences were found between groups on marital status, $\chi^2(4, n = 1,887) = 9.36, p > .01$; education $\chi^2(4, n = 1,888) = 8.75, p > .01$; and family income $\chi^2(5, n = 1,858) = 12.37, p > .01$. However, significant differences were found for age ($M = 20.13, SD = 2.42$, final sample; $M = 20.72, SD = 3.15$, excluded sample), $t(1,841) = 4.48, p < .001$, and race, $\chi^2(5, n = 1,879) = 56.70, p < .00001$. Inspection of the contingency table data for females indicated the greatest change occurred for Caucasians (non-Hispanic) and African Americans. Specifically, 70.8% were Caucasian in the final sample and 56.3% were Caucasian in the sample that was excluded from the analyses; 17.9% were African Americans in the final sample and 27.0% were African Americans in the sample that was excluded from the analyses. For men, no significant differences were found between groups on age ($M = 20.17, SD = 2.19$, final sample; $M = 20.13, SD = 2.34$, excluded sample), $t(1,845) = -.35, p > .01$; marital status, $\chi^2(4, n = 1,882) = 4.12, p > .01$; education $\chi^2(4, n = 1,878) = 10.12, p > .01$; and family income, $\chi^2(5, n = 1,856) = 13.17, p > .01$. However, significant differences were found for race, $\chi^2(5, n = 1,882) = 60.83, p < .00001$. As for the females, inspection of the contingency table data for the males indicated the greatest change occurred for Caucasians (non-Hispanic) and African Americans. Specifically, 81.3% were Caucasian in the final sample and 66.4% were Caucasian in the sample that was excluded from the analyses, and 7.9% were African Americans in the final sample; 19.6% were African Americans in the sample that was excluded from the analyses. Collectively, these analyses indicate that the females who were used in the final analyses were about 0.6 years younger than those excluded from the analyses; and, for both females and males, more Caucasian participants, relative to non-Caucasian participants, were used in the final analyses.

Test Instruments

Demographic and Family History Questionnaire. This questionnaire contained items related to the respondent's age, race, marital status, number of children, educational level, family (parents) income (during the past year), and location of primary childhood residence. Questions were asked about the respondent's family structure (e.g., parental separation/divorce) and the respondent's friends (e.g., were friends ever in legal trouble). In addition, the Family History Questionnaire contained an item, which was taken from a survey by Koss, Gidycz, and Wisniewski (1987), that asked the respondent to indicate how often (on a 6-point scale, ranging from "never" to "over 20 times") they had observed a parent or a stepparent deliver physical blows to the other parent during an average month when the respondent was growing up.

Child Abuse Potential (CAP) Inventory. The CAP Inventory is a 160-item questionnaire designed to screen for child physical abuse risk (Milner, 1986, 1994). The CAP Inventory contains a physical abuse scale, six descriptive factor scales (distress, rigidity, unhappiness, problems with family, problems with child and self, and problems from others) and three validity scales (lie, random response, and inconsistency). The validity scales are used in different paired combinations to form three validity indexes (faking-good, faking-bad, and random response). In addition, the CAP Inventory contains two special scales: the ego-strength (Milner, 1988) and loneliness (Milner, 1990) scales.

Internal consistency estimates for the CAP abuse scale range from .92 to .95 for general population and maltreating groups (Milner, 1986). Test-retest reliability estimates for 1-day, 1-week, 1-month, and 3-month intervals are .91, .90, .83, and .75, respectively, for general population groups (Milner, 1986). Across a mean test-retest interval of 6 months, an abuse scale reliability of .86 was reported for an Air Force sample (Mollerstrom, 1993). In the present study of naval trainees, internal consistency reliabilities for the abuse scale were .91 for the total sample, .92 for the female sample, and .91 for the male sample.

Individual classification rates based on discriminant analysis of child physical abusers and matched comparison parents are in the mid-80% to low-90% range (e.g., Milner, 1986; Milner, Gold, & Wimberley, 1986; Milner & Robertson, 1989), with similar rates reported for the standard weighted item scoring procedure developed for field use (Milner, 1989). Data on the abuse scale specificity in various low-risk groups indicate 100% correct classification of nurturing

foster parents (Couron, 1981/1982), low-risk mothers (Lamphear, Stets, Whitaker, & Ross, 1985), and nurturing mothers (Milner, 1986, 1989). The future prediction of abuse has been reported in a prospective study where a significant relationship was found between abuse scores and subsequent physical child abuse (Milner, Gold, Ayoub, & Jacewitz, 1984).

Construct validity data for the abuse scale have been reported (for a review see Milner, 1994). Elevated abuse scores are correlated with higher levels of physiological reactivity to child-related (Crowe & Zeskind, 1992; Pruitt & Erickson, 1985) and stressful non-child-related stimuli (Casanova, Domanic, McCanne, & Milner, 1992). With one exception (Haskett, Johnson, & Miller, 1994), abuse scores are correlated with the childhood observation and receipt of abuse (Caliso & Milner, 1992; Miller et al., 1991; Milner et al., 1990). Elevated abuse scores are correlated with social isolation/lack of social support (Burge, 1982; Kirkham, Schinke, Schilling, Meltzer, & Norelius, 1986; Whissell, Lewko, Carriere, & Radford, 1990); and, with one exception (Kolko, Kazdin, Thomas, & Day, 1993), abuse scores are correlated with negative family interactions (Caliso & Milner, 1992; Lamphear et al., 1985; Nealer, 1992; Whissell et al., 1990).

Individuals with elevated abuse scores report less self-esteem and ego-strength (Fulton, Murphy, & Anderson, 1991; Robertson & Milner, 1985; Whissell et al., 1990), and more life stress and personal distress (Burge, 1982; Kolko et al., 1993; Milner, Charlesworth, Gold, Gold, & Friesen, 1988). Investigators have uniformly reported a relationship between abuse scores and negative affect (e.g., Kirkham et al., 1986; Kolko et al., 1993; Milner et al., 1988; Milner, Halsey, & Fultz, 1995; Nealer, 1992; Robertson & Milner, 1985) and between abuse scores and negative perceptions of children's behavior (Chilamkurti & Milner, 1993; Kolko et al., 1993). Individuals with elevated abuse scores make more external attributions for their own behavior (Stringer & La Greca, 1985) and show fewer changes in their child-related attributions after receiving mitigating information regarding children's behavior (Milner & Foody, 1994). Further, individuals with elevated abuse scores have more problems in parent-child interactions (Kolko et al., 1993) and use more harsh discipline techniques and less positive parenting practices (Chilamkurti & Milner, 1993; Osborne, Williams, Rappaport, & Tuma, 1986; Schellenbach, Monroe, & Merluzzi, 1991; Whissell et al., 1990). In addition, as abuse scores increase, stress increases the degree to which parents are rejecting and punishing (Schellenbach et al., 1991).

Conflict Tactics Scale (CTS), Parent-Child (PC) version. A modified CTS (Form R; Straus, 1990, p. 33) was used to measure the respondent's recall of the techniques used by their parents to resolve parent-child conflicts. The CTS survey used in the present study contained 19 items that asked how often a given conflict resolution technique was used by either parents or stepparents during the worst year of the respondent's life before the respondent's age of 18 years. Three CTS subscales were scored: the reasoning scale (three items), the verbal aggression scale (six items, a seventh "cry" item was not scored, as recommended by Straus, 1990, p. 37), and the physical violence scale (nine items). The item response format consisted of seven response categories indicating the frequency ("never" to "more than 20 times") that the conflict resolution technique was used. To obtain scale scores for the three CTS subscales, the seven response categories were treated as a 7-point Likert-type scale (scored zero points for "never" to 6 points for "more than 20 times"), and each response score was summed across the items within the three subscales to obtain total subscale scores. This scoring procedure is one of several CTS scoring procedures that has been suggested by the test author (Straus, 1990, p. 36).

A study that used a similar CTS survey to assess parenting behavior (in the family of origin) during physically abusive and nonabusive parents' childhoods reported internal consistency reliabilities for the CTS reasoning, verbal aggression, and physical violence subscales of .47, .83, and .85, respectively (Caliso & Milner, 1992). In the present study, for the total trainee sample, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .55, .83, and .84, respectively. For the women, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .54, .84, and .85, respectively; and, for the men, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .55, .82, and .81, respectively. Several authors have used modified versions of the CTS to show relationships between a respondent's recall of the childhood experience of physically abusive parenting behavior and subsequent abuse experiences (e.g., Caliso & Milner, 1992; Downs, Miller, Testa, & Panek, 1992; Follette & Alexander, 1992; Hartz, 1995; Muller, Caldwell, & Hunter, 1994; O'Keefe, 1995; Riggs et al., 1990; Sack et al., 1982).

Conflict Tactics Scale (CTS), Intimate Partner (IP) version. Two forms of a modified CTS (Form A; Straus, 1979, p. 87) were used to measure the respondent's recall of the techniques used by the respondent and his/her romantic partners to resolve conflicts. One form of the CTS IP ("I did") asked about how frequently the respondent used different conflict resolution techniques with romantic partners (where romantic partner was defined as a person with whom the respondent was "dating, seeing, going steady with, or were married"). The second form of the CTS IP ("Did to me") asked the respondent how frequently different conflict resolution techniques were used by his/her romantic partners. The CTS IP surveys used in the present study contained 18 items. Three CTS IP subscales were scored: the reasoning scale (the four original CTS Form A items), the verbal aggression scale (the six original CTS Form A items), and the physical violence scale (eight items: original four CTS Form A items plus four items, "slapped the other person," "kicked, bit, or hit with a fist," "beat the other person," and "threatened the other person with a knife or gun," from the CTS Form R, Straus, 1990, p. 33).

On both forms of the CTS IP ("I did," "Did to me"), the item response format consisted of four response categories indicating the frequency ("0" to "more than 10") that the conflict resolution technique was used. To obtain scores for the three CTS IP subscales on both the "I did" and "Did to me" surveys, the five response categories were treated as a 5-point Likert-type scale (scored zero points for "0" to 4 points for "more than 10") and each response score was summed across the items within the three subscales to provide total subscale scores. As noted in the previous section, this scoring approach is one of several CTS scoring procedures that has been suggested by the test author (Straus, 1990, p. 36).

While there may be several reasons why respondents would mark "never" to all of the CTS IP survey items (e.g., they may never have used any conflict resolution techniques or they may never have had a romantic partner), the present study was interested only in those respondents who indicated that they had resolved conflicts with romantic partners, so respondents who marked "never" to all of the items on either of the CTS IP surveys ("I did," "Did to me") were excluded from the analyses. This decision follows a procedure previously used by Pan, Neidig, and O'Leary (1994).

In the present study, for the total trainee sample, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .75, .77, and

.89, respectively. For the women, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .73, .76, and .89, respectively; and, for the men, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .78, .76, and .80, respectively. For the total sample, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .76, .78, and .90, respectively. For the women, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .73, .76, and .89, respectively; and, for the men, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .78, .78, and .88, respectively. Although the CTS was initially developed for married couples, it has been used extensively to study courtship violence (e.g., Billingham & Notebaert, 1993; Billingham & Sack, 1986; Bookwala, Frieze, Smith, & Ryan, 1992; Cate, Henton, Koval, Christopher, & Lloyd, 1982; Deal & Wampler, 1986; Lane & Gwartney-Gibbs, 1985; Laner & Thompson, 1982; LeJeune & Follette, 1994; Makepeace, 1983, 1986; Ryan, 1995; Sack et al., 1982; White & Humphrey, 1994; White & Koss, 1991).

Physical Injury. While the previously described CTS IP ("Did to me") measure assessed the receipt of physically violent acts, it did not ask if the respondent had been physically injured by an intimate partner. Thus, immediately following the CTS IP items, an additional item asked if the respondent had ever been physically injured by a romantic partner. Five response options were available, ranging from "no, I was never injured" to "yes, the injury required hospitalization." The physical injury item was scored 1 point for no injury, 2 points for an injury that was minor but did not require medical treatment, and 3 points for an injury that required some type of medical treatment (response categories 3, 4, and 5). The use of this scoring approach meant that the last three response categories (each of which indicated a need for different levels of medical treatment) were collapsed into one category. Although this scoring decision had a conceptual basis (all physical injuries that required medical attention were grouped together), the primary consideration was statistical. That is, very few respondents indicated that they received a physical injury that required hospitalization, response category 5, which produced a highly skewed response distribution that was attenuated by combining the last three response categories.

Michigan Alcoholism Screening Test (MAST). The MAST is a 25-item questionnaire that was developed "to provide a consistent, quantifiable, structured interview instrument for the detection of alcoholism" (Selzer, 1971, p. 1654). However, the MAST has been widely used as a survey instrument for alcohol problems (e.g., Brady, Foulks, & Childress, 1982; Storgaard, Nielsen, & Gluud, 1994). The MAST items have a yes/no response format and weighted item-scoring criteria, which scores 24 MAST items, excluding item 7 from the total score (Selzer, 1971).

During the coding of the surveys, it was noted that some respondents wrote on the MAST that they did not drink and then proceeded to mark all MAST items "no" apparently without reading the items. Marking all items "no" results in a score of 8 points, which is above the cut-off score of 5 points used by Selzer (1971) to indicate that a respondent is an "alcoholic." A non-drinking respondent who read the items would have to answer several of the MAST items with a "yes" to earn a zero score. Therefore, to ensure that subjects who had never consumed alcohol were not scored erroneously as having alcohol problems, all respondents who marked "no" for all MAST items were excluded from the analyses.

Using male and female psychiatric patients, Zung (1982) reported an internal consistency reliability of .91 for the MAST, when the test was used to assess lifetime alcohol problems. In the same study, Zung reported that the MAST test-retest reliabilities for lifetime alcohol problems across a 1-day interval was .97. In another group of psychiatric patients, the MAST temporal stability for a test-retest interval of 4.8 months was .84 (Skinner & Sheu, 1982). In the present study, for the total trainee sample, the internal consistency for the 24-item MAST for lifetime alcohol problems was .70. For the women, the internal consistency was .65, and for the men the internal consistency was .73.

With respect to the individual classification rates of MAST scores, Storgaard et al. (1994) reviewed existing validity studies and found variable degrees of test sensitivity, ranging from .36 to .98, and selectivity, ranging from .57 to .96. While the lack of agreement on what constitutes alcoholism varied from study to study, Storgaard et al. indicated that, across studies, a substantial relationship (.91) was found between the MAST positive predictive value (ratio of true positive classifications to all positive classifications) and the prevalence of alcohol problems. While the data suggest caution should be used in using the MAST scores for individual classification

purposes, the data indicate that the MAST has some utility as a screening instrument for detecting lifetime alcohol problems, especially when used on a group basis, as in the present study.

Procedure

The survey questionnaires used in the present study were administered as part of a more extensive survey package that was offered to Navy basic trainees during their first week at the RTC. Data collection began in January, 1994. The collection of data from the male trainees was completed in March, 1994. Because there were relatively fewer women trainees, the data collection from women was completed in April, 1994, after the number of women tested was approximately equal to the number of men tested. The survey was administered in a classroom setting by two (male and female) United States Navy Hospital Corpsmen who were psychological technicians with previous experience in administering psychological tests.

In the process of requesting that trainees participate in the study, a Corpsman read a description of the study. Trainees who agreed to participate were given a Privacy Act statement and an informed consent, which included a detailed description of the study and the procedures used to ensure anonymity. In addition, prior to the beginning of the study, the Privacy Act statement and the informed consent were read to the participants. Participants were told that they could "leave blank any section or questions that (you) do not want to answer" and that they were "free to stop at any time before completing the survey." In the event that the recall of past traumatic experiences caused respondent distress, participants were informed that professional counseling would be provided upon request.

RESULTS

To explore the possibility that gender differences might exist in the relationships between the study measures, each planned analysis was conducted separately for females and males. Since the sample size for each gender was relatively large, very small correlations (accounting for less than 1% of the variance) would be significant at the .05 alpha level. Therefore, an alpha level of .01 (two-tailed test) was selected for tests reported in the present analyses.

As the first step in examining the relationships between parent-child conflict resolution techniques experienced during childhood and intimate partner conflict resolution techniques ("I did" and "Did to me"), simple correlations between the measures of these variables were computed (see Appendix, Table A1). Similarly, to initially examine the relationships between parent-child conflict resolution techniques experienced during childhood and child physical abuse risk variables, simple correlations between the measures of these variables were computed (see Appendix, Table A2). Finally, as the initial step in exploring the relationships between intimate partner conflict resolution techniques ("I did" and "Did to me") and child physical abuse risk variables, simple correlations between the measures of these constructs were computed (see Appendix, Table A3 for female data and Table A4 for male data).

Next, blockwise hierarchical regression analyses were conducted using (Block 1) the childhood experience of physical violence (parent-child physical violence and observed parental physical spousal violence), (Block 2) intimate partner physical violence ("Did to me"), and (Block 3) alcohol problems to predict the infliction of intimate partner physical violence (see Table 1). This order of block entry was used in this and subsequent regression analyses because the first goal of the study was to examine the contribution of the childhood experience of violence and then the contribution of intimate partner violence before the contribution of alcohol problems was considered. This approach also determined if alcohol problems had any independent contribution to study outcomes beyond alcohol's expected relationship with a personal history of violent events.

Table 1

Hierarchical Regression Equations Describing the Association between the Childhood Experience of Violence, the Receipt of Intimate Partner Violence, Alcohol Problems, and the Infliction of Intimate Partner Violence in Females and Males

Gender	Regression across blocks			Final variables in equation			
	Mul.R	R ²	R ² Ch	B	SE B	Beta	t
<i>Females (n = 882)</i>							
Block 1	.118	.014	.014*				
CTS PC physical violence				.050	.015	.094	3.217*
Observed spouse abuse				-.069	.122	-.017	-0.570
Block 2	.567	.321	.307**				
CTS IP violence received				.528	.027	.547	19.607**
Block 3	.573	.328	.007*				
MAST alcohol problems				.077	.025	.084	3.016*
<i>Males (n = 662)</i>							
Block 1	.152+	.023	.023**				
CTS PC physical violence				.008	.011	.025	0.732
Observed spouse abuse				-.112	.098	-.038	-1.147
Block 2	.564	.317	.294**				
CTS IP violence received				.295	.019	.522	15.945**
Block 3	.595	.354	.037**				
MAST alcohol problems				.076	.013	.197	6.097**

+ Not significant in the final model.

* $p < .01$. ** $p < .001$.

Overall, the regression analyses described in Table 1 indicated that all blocks of variables were significant for both females and males. For females, the experience of parent-child physical violence, intimate partner physical violence, and alcohol problems remained significant predictors in the final model, whereas for males only the experience of intimate partner physical violence and the presence of alcohol problems were significant in the final model. However, it is clear that

for both genders, the single strongest predictor of the infliction of intimate partner physical violence was the receipt of intimate partner physical violence.

Table 2

Hierarchical Regression Equations Describing the Association between the Childhood Experience of Violence, the Infliction of Intimate Partner Violence, Alcohol Problems, and the Receipt of Intimate Partner Violence in Females and Males

Gender	Regression across blocks			Final variables in equation			
	Mul.R	R ²	R ² Ch	B	SE B	Beta	t
<i>Females (n = 882)</i>							
Block 1	.071	.005	.005				
CTS PC physical violence				-.015	.016	-.028	-0.933
Observed spouse abuse				.182	.127	.042	1.431
Block 2	.561	.315	.310**				
CTS IP violence inflicted				.577	.029	.557	19.607**
Block 3	.562	.316	.001				
MAST alcohol problems				.025	.027	.026	0.923
<i>Males (n = 662)</i>							
Block	.226	.051	.051**				
CTS PC physical violence				.052	.019	.095	2.79*
Observed spouse abuse				.433	.175	.084	2.48
Block 2	.581	.337	.286**				
CTS IP violence inflicted				.946	.059	.535	15.945**
Block 3	.581	.338	.001				
MAST alcohol problems				.015	.023	.022	0.649

* $p < .01$. ** $p < .001$.

Similar blockwise hierarchical regression analyses were conducted using (Block 1) the childhood experience of physical violence (parent-child physical violence and observed parental physical spousal violence), (Block 2) intimate partner physical violence ("I did"), and (Block 3)

alcohol problems to predict the receipt of intimate partner physical violence (see Table 2). The analysis indicated that for females, only the infliction of intimate partner physical violence (in the blockwise analysis and in the final model) contributed to the receipt of intimate partner physical violence. For males, the blocks defining the childhood experience of physical violence and the infliction of intimate partner physical violence contributed to the receipt of intimate partner physical violence; and the experience of parent-child physical violence and the infliction of intimate partner physical violence were significant in the final model. As was the case in the prediction of what contributes to the infliction of intimate partner physical violence, the single strongest predictor of the receipt of intimate partner physical violence was the infliction of intimate partner physical violence, with partner physical violence being the only predictor of who receives physical violence in females.

Next, blockwise hierarchical regression analyses were conducted using (Block 1) the childhood experience of physical violence (parent-child physical violence and observed parental physical spousal violence), (Block 2) intimate partner physical violence ("I did," "Did to me"), and (Block 3) alcohol problems to predict being physically injured by an intimate partner (see Table 3). For females this analysis indicated that all blocks were significant, but only the experience of intimate partner physical violence ("Did to me") remained a significant predictor of physical injury in the final model. For males only the blocks that defined the experience of intimate partner physical violence and the presence of alcohol problems were significant, with both the intimate partner physical violence ("Did to me") and the presence of alcohol problems remaining as significant predictors of physical injury in the final model.

Table 3

Hierarchical Regression Equations Describing the Association between the Childhood Experience of Violence, Intimate Partner Violence, Alcohol Problems, and Physical Injury by an Intimate Partner in Females and Males

Gender	Regression across blocks			Final variables in equation			
	Mul.R	R ²	R ² Ch	B	SE B	Beta	t
<i>Females (n = 882)</i>							
Block 1	.130+	.017	.017*				
CTS PC physical violence				.006	.002	.080	2.498
Observed spouse abuse				.022	.017	.040	1.251
Block 2	.436	.190	.173*				
CTS IP violence inflicted				-.001	.005	-.005	-0.125
CTS IP violence received				.052	.005	.413	11.263**
Block 3	.442	.195	.005				
MAST alcohol problems				.008	.004	.071	2.331
<i>Males (n = 662)</i>							
Block 1	.079	.006	.006				
CTS PC physical violence				.001	.002	.031	0.749
Observed spouse abuse				-.011	.018	-.024	-0.585
Block 2	.211	.045	.039**				
CTS IP violence inflicted				.006	.007	.040	0.857
CTS IP violence received				.013	.004	.146	3.141*
Block 3	.242	.059	.014*				
MAST alcohol problems				.007	.002	.125	3.107*

+ Not significant in the final model.

* $p < .01$. ** $p < .001$.

Table 4

Hierarchical Regression Equations Describing the Association between the Childhood Experience of Violence, Intimate Partner Violence, Alcohol Problems, and Adult Child Abuse Risk in Females and Males

Gender	Regression across blocks			Final variables in equation			
	Mul.R	R ²	R ² Ch	B	SE B	Beta	t
<i>Females (n = 882)</i>							
Block 1	.284	.081	.081**				
CTS PC physical violence				2.190	0.336	0.218	6.526**
Observed spouse abuse				6.726	2.616	0.085	2.571
Block 2	.357	.127	.046**				
CTS IP violence inflicted				2.558	0.725	0.135	3.529**
CTS IP violence received				1.306	0.741	0.071	1.761
Physical injury by partner				4.366	5.110	0.030	0.854
Block 3	.380	.144	.017**				
MAST alcohol problems				2.300	0.550	0.133	4.184**
<i>Males (n = 662)</i>							
Block 1	.285	.081	.081**				
CTS PC physical violence				2.844	0.462	0.247	6.158**
Observed spouse abuse				3.461	4.300	0.032	0.805
Block 2	.305	.093	.012				
CTS IP violence inflicted				3.005	1.713	0.081	1.754
CTS IP violence received				-0.470	0.964	-0.022	-0.488
Physical injury by partner				4.674	9.245	0.019	0.506
Block 3	.322	.104	.011*				
MAST alcohol problems				1.585	0.569	0.110	2.785*

* $p < .01$. ** $p < .001$.

Finally, to explore the possibility that the presence of both the experience of childhood violence and intimate partner violence, as well as alcohol problems, contribute to an increased risk of child physical abuse, additional blockwise hierarchical regression analyses were conducted

using (Block 1) the childhood experience of physical violence (parent-child physical violence and observed parental physical spousal violence), (Block 2) intimate partner physical violence ("I did," "Did to me," physical injury), and (Block 3) alcohol problems to predict child physical abuse risk (see Table 4). These analyses indicated that all blocks were significant for females, but only the blocks defining the childhood experience of physical violence and alcohol problems were significant for males. For females, the experience of parent-child physical violence, the infliction of intimate partner physical violence, and alcohol problems remained significant predictors in the final model, whereas for males only the experience of parent-child physical violence and the presence of alcohol problems were significant in the final model. Thus, for females, but not for males, the childhood experience of parent-child physical violence followed by the use of physical violence against an intimate partner increased the risk for child physical abuse in the final model. Nevertheless, for both genders, the single strongest predictor of adult child physical abuse risk was the childhood experience of parent-child physical violence.

DISCUSSION

The present study provides partial support for the social learning perspective that the childhood experience of violence is associated with the infliction of intimate partner violence and child physical abuse risk. The regression analyses revealed that the childhood experience of parent-child physical violence was selectively and modestly related to intimate partner physical violence, and the childhood observation of parental physical spousal abuse was not independently related to intimate partner physical violence. The most important predictive factor in intimate partner physical violence was whether the respondent's partner was involved in physical violence. In contrast to the modest impact of parent-child physical violence on intimate partner physical violence, regression analyses revealed that the childhood experience of parent-child physical violence was the single best predictor of child physical abuse risk in both males and females. As was the case in the prediction of intimate partner physical violence, the childhood observation of parental physical spousal abuse did not add to the prediction of child physical abuse risk. Further, although effects were expected for both females and males, intimate partner violence ("I did") only contributed to an increased risk of child physical abuse in females. Thus, the hypothesized patterning of violence was evident (related to an increased risk for child abuse) only in females. Collectively, these findings suggest that early social learning and the intergenerational transmission of abuse perspectives may be more important in explaining child physical abuse than intimate partner physical violence. Finally, after a consideration of the effects of violent events on later violence, alcohol problems were found to contribute selectively and modestly to the prediction of violence.

More specifically, the regression analyses revealed that, in both females and males, the single best predictor of the infliction of intimate partner violence was the receipt of intimate partner violence, and the single best predictor of the receipt of intimate partner violence was the infliction of intimate partner violence. These data support previous reports that dating violence is bi-directional in nature (e.g., Alzenman & Kelley, 1988; Cate et al., 1982; Deal & Wampler, 1986; Gwartney-Gibbs, Stockard, & Bohmer, 1987; Sack et al., 1982; Sigelman et al., 1984); and, the results replicate the findings of Marshall and Rose (1990), who conducted the same type of regression analyses with the same first two blocks of variables and found the same results for females and males. Further, Bookwala et al. (1992), who used a different combination of

predictor variables (i.e., romantic jealousy, sex role attitudes, attitudes toward violence, general level of interpersonal violence, verbal aggression, partner's verbal aggression, and partner's physical violence), also found that the receipt of a partner's physical violence was the largest independent predictor of expressed ("I did") violence in both females and males.

While the present study replicates the Marshall and Rose (1990) and Bookwala et al. (1992) studies in that each study found that the receipt of intimate partner violence was the best predictor of the infliction of intimate partner violence, it should be noted that the present study found that similar amounts of variance for females (R^2 change, .310) and males (R^2 change, .286) were accounted for by intimate partner violence received in the prediction of inflicted intimate partner violence. Marshall and Rose (1990), however, reported substantial differences in the amounts of variance accounted for females (R^2 change, .466) and males (R^2 change, .089) in the prediction of the infliction of intimate partner violence and, on this basis, concluded that substantial gender differences existed. Bookwala et al. (1992), who conducted similar analyses using a different combination of predictor variables (which were described previously) reported regression data indicating less of a gender difference in the impact of the receipt of intimate partner aggression than that reported by Marshall and Rose (1990), but more of a gender difference (showing a larger impact for females) than that reported in the present study.

For comparison purposes, if findings at the .05 alpha level are excluded from consideration (as was done in the present study), Marshall and Rose (1990) found that the childhood experience of parental violence contributed to the infliction of intimate partner violence in females, but not in males, which again are the same findings as those reported in the present study. Likewise, Tontodonato and Crew (1992) found that experiencing (but not observing) parental aggression contributed to dating violence in females but not in males. In a study of only women, White and Humphrey (1994) found that experiencing (and observing) parental aggression contributed independently to the prediction of physical aggression in women.

Regarding the receipt of intimate partner violence in the present study, the women's personal history (i.e., a history of childhood violence experiences, which includes experiencing and observing parental violence, and a history of alcohol problems) did not contribute to the prediction of the receipt of intimate partner physical violence. However, the men's childhood experience of parent-child violence and the infliction of intimate partner physical violence were

both significant predictors of the receipt of intimate partner physical violence. For the receipt of intimate partner violence, Marshall and Rose (1990) found the opposite effects for gender. That is, for women the childhood experience of parental physical violence and intimate physical partner violence were associated with the receipt of intimate partner physical violence, whereas for males only the infliction of intimate partner physical violence was associated with the receipt of intimate partner physical violence. However, the results of the present study are congruent with the observations of Hotaling and Sugarman (1986) who, following a review of the marital violence literature, concluded that characteristics associated with the husband-offender "have greater utility for assessing the risk of husband-to-wife violence than characteristics of the wife-victim" (p. 101).

Although the extent of gender differences in intimate partner violence remains to be determined, it is clear that across existing studies the single best predictor of intimate partner violence, both inflicted and received, for females and males is the intimate partner's involvement in physical violence. The data from the present study support the conclusion of Gwartney-Gibbs et al. (1987) that in courtship violence the person's "experiences as victims and perpetrators are stronger influences (on intimate partner aggression) than parents and peers in predicting courtship aggression" (p. 276). In an attempt to explain the substantial relationship between the infliction and receipt of violence in married couples, Langhinrichsen-Rohling et al. (1995) suggested that marital aggression is due to a "skill-deficit and faulty communication" pattern in both partners so that each might report more verbal and physical violence inflicted and received. The present findings of bi-directional relationships, which primarily represent dating history violence, suggest that the communication deficits suggested by Langhinrichsen-Rohling et al. (1995) may be evident in intimate relationships prior to marriage. However, at present, this is only speculation. Caution should be used in the interpretation of the meaning of the apparent bi-directional nature of intimate partner violence. On this issue, which is beyond the scope of the present study, Vivian and Langhinrichsen-Rohling (1994) have provided a discussion of the possibility that the bi-directional effects may not be the same for females and males, with suggestions that the meaning and consequences of female and male intimate partner physical violence may be different for each gender.

It should also be noted that in the final model predicting physical injury, for females the only predictor of injury by an intimate partner was the receipt of physical violence from the partner. For males both the receipt of physical violence from an intimate partner and alcohol problems were predictive of physical injury. Noteworthy was the finding that in the final model, neither parent-child physical violence nor the childhood observation of parent physical spouse abuse was predictive of physical injury by an intimate partner for females or males (see Table 3). Further, relative to the variance accounted for in the models predicting intimate partner physical violence, substantially less variance was accounted for in the models predicting physical injury, suggesting that physical injury results from factors other than those investigated in the present study.

Collectively, the data on intimate partner violence and physical injury do not support the suggestion made by Langhinrichsen-Rohling et al. (1995) that in intimate partner relationships stronger associations may exist between the childhood experience of abuse and female victimization, relative to female perpetration, and male perpetration, relative to male victimization. In fact, the findings obtained in the present study suggest that just the opposite associations may exist. Data presented in Tables 1 and 2 indicate that in intimate partner relationships a stronger association existed between the childhood experience of abuse and female perpetration, relative to female victimization, and male victimization, relative to male perpetration.

The part of the study that sought to show that a pattern of childhood and intimate partner physical violence would increase child physical abuse risk provided support for the patterning of physical violence in females, but not in males. The data indicated that for females the experience of parent-child physical violence, the infliction ("I did") of intimate partner physical violence, and alcohol problems each independently contributed to the likelihood of child physical abuse, whereas for males only the experience of parent-child physical violence and alcohol problems contributed to child physical abuse risk. In neither case was the childhood observation of parent physical spouse abuse a significant predictor of child physical abuse risk. For both genders, the single strongest predictor of adult child physical abuse risk was the childhood experience of parent-child physical aggression, suggesting that patterning is less important in the intergenerational transmission of child physical abuse than the specific childhood experience of parental physical violence.

The present results, showing relationships between the childhood experience of physical violence and child physical abuse risk, are congruent with previous reports of a relationship between a childhood history of abuse and the abuse of one's children (for reviews see Kaufman & Zigler, 1987; Widom, 1989) and an increased risk of child physical abuse (e.g., Caliso & Milner, 1992; Miller et al., 1991; Milner et al., 1990). Somewhat surprising, however, was the failure to find intergenerational effects for the reported observation of parent physical spouse abuse. The literature, however, is mixed on whether this relationship exists and on whether it is gender specific. For example, Cappell and Heiner (1990) found a relationship between females and males observing spousal abuse and being a victim, but not between observing spousal violence and being a perpetrator; whereas other investigators have reported that witnessing and experiencing violence in childhood is relevant only to explaining male violence in abusive relationships (e.g., Gwartney-Gibbs et al., 1987; Stets & Pirog-Good, 1987). Further, Hotaling and Sugarman (1986) reviewed the literature (univariate studies only) and reported that of 42 characteristics studied in female victims (dating or married) only the childhood experience of witnessing violence between parents or caregivers was consistently associated with being a female victim of intimate partner violence.

However, in a subsequent study conducted by Hotaling and Sugarman (1990), which used multivariate analyses, these authors failed to find any effects of having witnessed violence between parents on the likelihood of intimate partner victimization in women. Hotaling and Sugarman indicated that this outcome may have been due to the examination of the effects of witnessing parental violence in a multivariate manner so that other, more discriminating factors that covary with caretaker violence reduced the independent impact of observation of parental spouse abuse. Nevertheless, in the same study, the witnessing of caretaker violence by males was related to the likelihood of male physical assaults. In other studies conducted after the Hotaling and Sugarman (1986) review, investigators failed to find any effects of receiving or observing parental violence on intimate partner violence for either women or men. For example, Tontodonato and Crew (1992), using a multivariate approach, reported that "interparent violence" was not significant in the models predicting dating violence for males and females. MacEwen and Barling (1988) failed to find any association between family of origin violence (combined measure of receiving and observing parental violence) and marital violence for either men or

women. Finally, Stith and Farley (1993), who also failed to observe a direct path between observing parental violence and use of severe marital violence, did find that the observation of spousal violence as a child had an effect on the approval of violence by males, and approval of violence was related to male spouse abuse. This finding suggests the possibility of an indirect path for the effects of observing parental violence, which was not examined in the present study.

The conclusions drawn from the present study must be tempered by a consideration of the study limitations. One problem with the present investigation relates to the self-report nature of the study. There was no independent confirmation of the information provided by the participants, nor was any confirmation possible given that the survey was conducted anonymously. While the use of self-report survey data without independent confirmation is open to criticism, it should be noted that Berger, Knutson, Mehm, and Perkins (1988) have provided data which indicate that survey data from nonclinical samples are representative of historical events and can be used to study the effects of the childhood experiences of abuse.

Related to the survey of parenting styles, the present study did not assess the parenting styles of mothers separately from fathers. Further, only one item was used to examine the childhood experience of parent physical spouse abuse, and the study did not assess if observing father-to-mother violence and mother-to-father violence had differential impact on intimate partner violence or child abuse risk. While it is possible that different results might have been found if the types of parental violence of mothers and fathers had been assessed separately, it should be noted that other authors have reported that CTS maternal and paternal parenting scores are substantially correlated (e.g., $r = .72$; Hartz, 1995). Likewise, Marshall and Rose (1990), who asked separately about the observation of father and mother spousal violence, reported that the two measures were highly correlated ($r = .85$), which resulted in the two measures being combined for data analyses. Thus, even if separate measures had been taken of mother and father violent acts, it appears that it might have been difficult to find differences due to the substantial overlap in the recall of mother and father parental violence.

Another measurement issue is that the MAST assessment of alcohol use was based on lifetime alcohol problems. An assessment of alcohol usage that was related to the reports of intimate partner violence may have yielded more robust results. However, the primary interest of the present study was the investigation of the impact of alcohol problems on adult child

physical abuse risk. Since the overwhelming majority of the participants were not parents, the risk was in the future. Thus, an evaluation of future child abuse related alcohol problems was not possible. Consequently, the lifetime history of alcohol problems was selected as the most appropriate alcohol measure, especially since lifetime alcohol problems have been recently reported to have a substantial relationship to child physical abuse (Kelleher et al., 1994).

A positive aspect of the study was the use of a large sample of participants, which was not drawn from a high school or college setting. Nevertheless, the generalizability of the findings, even within the Navy recruit trainee population, is limited because a substantial number of respondents failed to complete all of the questionnaires. Although this problem is not unusual in self-report survey studies, it is never known if the histories of those who failed to complete the questionnaires would have produced the same results as those who completed the questionnaires. In addition, although another positive aspect of the present study was that it used procedure checks to detect three types of response distortions (i.e., faking good, faking bad, random responding), the removal of an additional group of trainees from the analyses who appeared to be engaging in response distortions places further limits on the generalizability of the findings.

In conclusion, the current study provides data that modestly support the view that for females a pattern of violence (i.e., receipt of parent-child physical violence and infliction of intimate partner physical violence) increases the risk of child physical abuse. However, the view that, even in some individuals, there is a continuum of violence from the childhood experience of violence to intimate partner violence to adult child physical abuse is simplistic without a determination of other contributing and buffering factors at the personal and structural levels that moderate and mediate the linkages. The need to search for additional contributing factors is supported by the fact that in even the most robust of the regression models (see Tables 1 and 2), only about one third of the variance was accounted for, indicating that other major contributing factors remain to be included in the study of characteristics that contribute to intimate partner and child-directed physical violence. Even less variance was accounted for in the regression models (see Tables 3 and 4) for intimate partner physical injury (19.5% for females and 5.9% for males) and adult child abuse risk (14.4% for females and 10.4% for males). This indicates that there may be little practical or clinical value in determining abusive histories in the absence of other contributing factors as concerns adult child physical abuse potential.

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Appendix

Tables A1, A2, A3, and A4 contain the simple correlations between each of the violence subscales used in the present study. In addition, the conflict tactics experienced during childhood are correlated with the observation of parental spouse physical abuse and physical injury received from an intimate partner in Table A1; and, the conflict tactics experienced during childhood are correlated with the MAST scores in Table A2. The simple correlations between the intimate partner conflict tactics ("I did" and "Did to me"), the physical injury received from an intimate partner, and the MAST scores for females and males are presented in Tables A3 and A4, respectively.

Two set of simple correlations were not included in Tables A1, A2, A3, or A4. The first set is the correlations between the CAP Inventory child physical abuse scale and the observation of parental spouse physical abuse, physical injury by an intimate partner, and MAST scores, which were as follows. For women, the correlations between the child physical abuse scale and the observation of parental spouse physical abuse, physical injury by an intimate partner, and MAST scores were .17 ($p < .0005$), .14 ($p < .0005$), and .17 ($p < .0005$), respectively. For men, the correlations between the child physical abuse scale and the observation of parental spouse physical abuse, physical injury by an intimate partner, and MAST scores were .17 ($p < .0005$), .06 ($p > .05$), and .13 ($p < .001$), respectively. The second set is the correlations between intimate partner physical injury and MAST score. For women, the correlation between intimate partner physical injury and MAST score was .12 ($p < .001$). For men, the correlation between intimate partner physical injury and MAST score was .17 ($p < .0005$).

Table A1

Correlations between CTS Parent-Child (PC) Conflict Resolution Scores and between Observation of Parent Spousal Physical Abuse, CTS PC Conflict Resolution Scores, and Intimate Partner (IP) Conflict Resolution Scores and Reports of Physical Injury by Intimate Partner for Females and Males

Scales	CTS PC conflict resolution scale					
	Reasoning		Verbal aggression		Physical violence	
	Female	Male	Female	Male	Female	Male
CTS PC verbal aggression	-.16***	.02	-.	-.	-.	-.
CTS PC physical violence	-.17***	-.04	.71***	.67***	-.	-.
Observation of spouse abuse	-.08	.01	.30***	.26***	.32***	.33***
CTS IP reasoning						
I did	.16***	.21***	.09*	.13**	.08	.03
Did to me	.14***	.19***	.06	.10*	.05	.05
CTS IP verbal aggression						
I did	-.01	.04	.15***	.22***	.13***	.15***
Did to me	-.05	.06	.11*	.24***	.09*	.18***
CTS IP physical violence						
I did	-.00	.01	.10**	.17***	.12***	.15***
Did to me	-.04	.05	.04	.21***	.05	.21***
Injury by partner	-.04	-.04	.11*	.07	.11*	.06

* $p < .01$. ** $p < .001$. *** $p < .0005$.

Table A2

Correlations between CTS Parent-Child (PC) Conflict Resolution Scores, CAP Inventory Scores, and MAST Scores for Females and Males

Scales	CTS PC conflict resolution scale					
	Reasoning		Verbal aggression		Physical violence	
	Female	Male	Female	Male	Female	Male
CAP physical abuse	-.13***	-.03	.29***	.31***	.27***	.28***
CAP distress	-.11*	-.02	.25***	.27***	.22***	.24***
CAP rigidity	.04-	-.01	.04	.11*	.08	.13***
CAP unhappiness	-.09*	.02	.06	.10*	.08	.11*
CAP problems with family	-.23***	-.10*	.41***	.33***	.38***	.30***
CAP problems from others	-.03	.00	.13***	.15***	.11*	.12**
CAP ego-strength	.11*	.01	-.27***	-.26***	-.24***	-.24***
CAP loneliness	-.13***	-.01	.24***	.23***	.21***	.19***
MAST scores	.07	.07	.08	.13**	.01	.15***

Note. The CAP Inventory Problems with Child Scale scores were not computed because more than 90% of the trainees did not have children.

* $p < .01$. ** $p < .001$. *** $p < .0005$.

Table A3

Correlations between CTS Intimate Partner (IP) Conflict Resolution Scores and between CTS IP Conflict Resolution Scores, Report of Physical Injury, and CAP Inventory Scores for Females

Scales	CTS IP conflict resolution scales					
	Reasoning		Verbal aggression		Physical violence	
	I did	Did to me	I did	Did to me	I did	Did to me
CTS IP reasoning						
I did	-.-	-.-				
Did to me	.66***	-.-				
CTS IP verbal aggression						
I did	-.-	.16***	-.-	-.-		
Did to me	.26***	-.-	.75***	-.-		
CTS IP physical violence						
I did	-.-	.00	-.-	.49***	-.-	-.-
Did to me	.11**	-.-	.46***	-.-	.56***	-.-
Injury by partner	.10*	.02	.22***	.29***	.25***	.42***
Observation of spouse abuse	.03	.05	.09*	.08	.05	.06
CAP physical abuse	.00	-.04	.28***	.25***	.23***	.19***
CAP distress	.02	-.02	.28***	.25***	.23***	.18***
CAP rigidity	-.09*	-.11**	.09*	.03	.11**	.04
CAP unhappiness	-.05	-.06	.14***	.13***	.12***	.14***
CAP problems with family	.06	.03	.06	.07	.01	.04
CAP problems from others	.00	-.02	.15***	.10*	.11**	.09*
CAP ego-strength	-.03	.02	-.29***	-.26***	-.24***	-.19***
CAP loneliness	.00	-.07	.26***	.25***	.21***	.19***
MAST scores	-.02	-.03	.19***	.17***	.14***	.11**

Note. The CAP Inventory Problems with Child Scale scores were not computed because more than 90% of the trainees did not have children.

* $p < .01$. ** $p < .001$. *** $p < .0005$

Table A4

Correlations between CTS Intimate Partner (IP) Conflict Resolution Scores and between CTS IP Conflict Resolution Scores, Report of Physical Injury, and CAP Inventory Scores for Males

Scales	CTS IP conflict resolution scales					
	Reasoning		Verbal aggression		Physical violence	
	I did	Did to me	I did	Did to me	I did	Did to me
CTS reasoning						
I did	-.-	-.-				
Did to me	.79***	-.-				
CTS IP verbal aggression						
I did	-.-	.35***	-.-	-.-		
Did to me	.35***	-.-	.77***	-.-		
CTS IP physical violence						
I did	-.-	.09	-.-	.43***	-.-	-.-
Did to me	.16***	-.-	.45***	-.-	.56***	-.-
Injury by partner						
	.00	-.04	.22***	.21***	.16***	.20***
Observation of spouse abuse						
	.02	.05	.10*	.16***	.07	.15***
CAP physical abuse						
	.08	.08	.24***	.17***	.14***	.11*
CAP distress						
	.10*	.09	.23***	.17***	.13**	.08
CAP rigidity						
	-.05	-.01	.07	.01	.05	.05
CAP unhappiness						
	-.01	-.04	.08	.06	.09	.07
CAP problems with family						
	.06	.08	.10*	.08	.03	.05
CAP problems from others						
	-.03	.00	.19***	.16***	.09	.13***
CAP ego-strength						
	-.10*	-.09	-.25***	-.18***	-.14***	-.09
CAP loneliness						
	.09	.07	.21***	.17***	.12*	.10*
MAST scores						
	.00	.04	.27***	.25***	.31***	.21***

Note. The CAP Inventory Problems with Child Scale scores were not computed because more than 90% of the trainees did not have children.

* $p < .01$. ** $p < .001$. *** $p < .0005$.

REPORT DOCUMENTATION PAGE			<i>Form Approved</i> OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE July 96		3. REPORT TYPE AND DATE COVERED
4. TITLE AND SUBTITLE Childhood Parenting Experiences, Intimate Partner Conflict Resolution, and Adult Risk for Child Physical Abuse			5. FUNDING NUMBERS Program Element: Work Unit Number: EUPERS Reimbursable-6309	
6. AUTHOR(S) Lex L. Merrill, Linda K. Hervig, Joel S. Milner				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Health Research Center P. O. Box 85122 San Diego, CA 92186-5122			8. PERFORMING ORGANIZATION Report No. 95-27	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Naval Medical Research and Development Command National Naval Medical Center Building 1, Tower 2 Bethesda, MD 20889-5044			10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES None				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) The relationships between conflict resolution tactics experienced during childhood, intimate partner conflict resolution tactics, alcohol problems, and child physical abuse risk were investigated. Participants were 1,544 female and male Navy recruit trainees. Regression analyses indicated that (1) the receipt of intimate partner physical violence accounted for the most variance in predicting who would inflict physical violence against an intimate partner; (2) the infliction of intimate partner physical violence accounted for the most variance in predicting who would receive physical violence from an intimate partner; (3) among the parent and intimate partner physically violent events, parent-child violence experienced during childhood accounted for the most variance in explaining child abuse risk in females and males, with the infliction of intimate partner violence adding only to the prediction of child abuse risk in females; and (4) after the effects of violent experiences were removed, alcohol problems contributed significantly, albeit very modestly, to the prediction of who expressed intimate partner physical violence for males and females, who was physically injured by an intimate partner (in the case of male injury), and who was at risk of child physical abuse for males and females. Unlike the findings in some previous reports, gender differences tended to be modest.				
14. SUBJECT TERMS Child abuse; intimate partner conflict; child physical abuse; child physical abuse risk.			15. NUMBER OF PAGES 45	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	